



Attorney Docket No. 0756-2119

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:

Hisashi OHTANI et al.

Serial No. 09/550,598

Filed: April 17, 2000

For: SEMICONDUCTOR DEVICE AND
PROCESS FOR PRODUCING THE
SAME

) Group Art Unit: 2814

) Examiner: P. Cao

) CERTIFICATE OF MAILING

) I hereby certify that this correspondence is
) being deposited with the United States Postal
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) Commissioner for Patents, P.O. Box 1450,
) Alexandria, VA 22313-1450, on October 18,
) 2004.

RESPONSE

Honorable Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The Official Action mailed May 18, 2004, has been received and its contents carefully noted. Filed concurrently herewith is a *Request for Two Month Extension of Time*, which extends the shortened statutory period for response to October 18, 2004. Also, filed concurrently herewith is a *Notice of Appeal*. Accordingly, the Applicants respectfully submit that this response is being timely filed.

The Applicants note with appreciation the consideration of the Information Disclosure Statements filed on April 17, 2000, June 14, 2000, September 7, 2000, October 16, 2000, December 1, 2000, September 20, 2001, February 28, 2002, and February 11, 2004.

Claims 1, 2, 4, 5, 7, 9, 11, 12, 14, 18 and 20-29 are pending in the present application, of which claims 1, 2, 4, 14, 28 and 29 are independent. For the reasons set forth in detail below, all claims are believed to be in condition for allowance. Favorable reconsideration is requested.

Paragraph 2 of the Official Action continues to reject claims 1, 5, 7, 9, 14, 18 and 20-29 as obvious based on the combination of U.S. Patent No. 5,706,064 to Fukunaga

et al., U.S. Patent No. 5,536,950 to Liu et al. and U.S. Patent No. 6,400,428 to Izumi. The Applicants respectfully traverse the rejection because the Official Action has not made a *prima facie* case of obviousness.

As stated in MPEP §§ 2142-2143.01, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." In re Kotzab, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

Also, MPEP § 2142 states that the examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. It is respectfully submitted that the Official Action has failed to carry this burden. While the Official Action relies on various teachings of the cited prior art to disclose aspects of the claimed invention and asserts that these aspects could be used together, it is submitted that the Official Action does not adequately set forth why one of skill in the art would combine the references to achieve the present invention.

The Official Action implicitly concedes that Fukunaga and Liu do not teach that pixel electrode 412 is light reflective (pages 5 and 8, Paper No. 21). The Official Action

relies on a reference, Izumi, to allegedly teach using either a transparent electrically conductive film or a reflective electrically conductive film with Fukunaga. Specifically, the Official Action asserts that "it also would have been obvious to form Fukunaga's pixel electrode being either a transparent electrically conductive film or a reflective electrically conductive film depending upon the display device type which is desired for the liquid crystal display device, as taught by Izumi (column 6, lines 15-20)" (page 5, Paper No. 21). In other words, the Official Action appears to assert that it would have been obvious to modify or replace Fukunaga's pixel electrode 412 with Izumi's pixel electrode 15. For the reasons stated in detail below, the Applicants respectfully disagree and traverse the above assertions in the Official Action.

The Official Action has not given any indication that one with ordinary skill in the art at the time of the invention would have had a reasonable expectation of success when combining Fukunaga, Liu and Izumi. Fukunaga discloses that "the R-, G-, B-colored portions 413 and the black matrix portion 414 become glass which has an insulating property" (column 26, lines 30-33). The Applicants respectfully submit that if the reflective conductive film of Izumi is applied to Fukunaga's display device, as suggested by the Official Action, then the R-, G-, B-colored portions could not be used as color filters. In other words, even if Fukunaga is combined with Liu and Izumi as suggested by the Official Action, since Fukunaga's device is required to be transmissive in order to allow the light to enter into the color filters, the resulting hypothetical combined structure of Fukunaga and Izumi could not function as a liquid crystal display device. In other words, nothing in Izumi teaches or suggests changing Fukunaga from a transmissive-type LCD to a reflective-type LCD. Therefore, the Applicants believe this rejection should be traversed.

Furthermore, there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify Fukunaga, Liu and Izumi or to combine reference teachings to achieve the claimed invention.

Liu does not cure the deficiencies in the alleged motivation to combine Fukunaga and Izumi. The Official Action relies on Liu to allegedly teach “the steps of depositing the embedded conductive layer 82 in the opening [of Fukunaga], followed by planarization to expose the surface of the insulating layer 78 and depositing and patterning the pixel electrode 24 on the embedded conductive layer 82” (page 4, Id.). Liu does not show that one of ordinary skill in the art would have been motivated to combine Fukunaga and Izumi.

In the “Response to Arguments” section, Paragraph 5 of the Official Action asserts that “the combined teachings of the references would have suggested to those of ordinary skill in the art because Izumi clearly suggests that the display electrode of Fukunaga can have a pixel electrode made of either a transparent electrically conductive film or a reflective electrically conductive film depending upon the display device type which is desired for the liquid crystal display device (column 6, lines 15-20)” (page 6, Paper No. 0504). The Applicants respectfully disagree and traverse the above assertions in the Official Action.

Liu appears to teach that an aperture ratio is an important factor influencing the power requirement of an AMLCD, and Liu appears to have an object of increasing the aperture ratio (see column 1, lines 29-33, and column 2, lines 62-65). Liu clearly discloses that a transparent metal (ITO) is used as a pixel electrode (see column 5, lines 40-41). Also, Liu discloses that a high aperture ratio is achieved, and that the high aperture ratio allows use of a lower power backlight. In view of these disclosures, it is clearly understood that Liu’s liquid crystal display device is a transmission type liquid crystal display device. Whether or not Izumi discloses that a pixel electrode is a transparent electrically conductive film or a reflective electrically conductive film (see column 6, lines 15-19), there is no proper suggestion or motivation that would have instructed one of ordinary skill in the art at the time of the present invention to change the pixel electrode of Liu in a transmission type liquid crystal display device to a reflective pixel electrode.

Furthermore, Izumi is directed to a liquid crystal device/display utilizing a plurality of adjoining display panels to form a single display screen and merely discloses that “[e]ach pixel electrode 15 is a transparent electrically conductive film made of ITO (Indium Tin Oxide) or the like when used for a light transmitting type display device and a reflective electrically conductive film made of aluminum (Al) or the like when used for a reflecting type display device” (column 6, lines 15-19, emphasis added). So, Izumi fails to teach any interchangeability between a light transmitting type display device and a reflecting type display device, much less such interchangeability for use as a pixel electrode.

In fact, Izumi teaches that a transparent electrically conductive film should be used for a light transmitting type display device. Since Fukunaga and Liu are directed to light transmitting type display devices, Izumi, in fact, teaches away from the present invention by teaching that a transparent film should be used with a light transmitting type display device. Therefore, there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify Fukunaga, Liu and Izumi or to combine reference teachings to achieve the claimed invention.

The Applicants further contend that even assuming, *arguendo*, that the combination of Fukunaga, Liu and Izumi is proper, there is a lack of suggestion as to why a skilled artisan would use the proposed modifications to achieve the unobvious advantages first recognized by the Applicants. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.

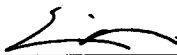
In the present application, it is respectfully submitted that the prior art of record, alone or in combination, does not expressly or impliedly suggest the claimed invention and the Official Action has not presented a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.

For the reasons stated above, the Official Action has not formed a proper *prima facie* case of obviousness. Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a) are in order and respectfully requested.

Paragraph 3 of the Official Action continues to reject claims 2 and 11 as obvious based on the combination of Fukunaga, Liu, Izumi, and U.S. Patent 6,221,140 to Kobayashi et al. Paragraph 4 of the Official Action rejects claims 4 and 12 as obvious based on the combination of Fukunaga, Izumi, Jun and Kobayashi. Kobayashi and Jun do not cure the deficiencies in the alleged motivation to combine Fukunaga and Izumi. The Official Action relies on Kobayashi to allegedly teach forming an oxide conductive layer by a spin coating method to cover a substrate and an opening (page 7, Id.) and on Jun to allegedly teach etching an embedded conductive layer using a second conductive layer as a mask in a self-alignment manner (page 8, Id.). Kobayashi and Jun do not show that one of ordinary skill in the art would have been motivated to combine Fukunaga and Izumi. Therefore, the Official Action has not formed a proper *prima facie* case of obviousness. Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a) are in order and respectfully requested.

Should the Examiner believe that anything further would be desirable to place this application in better condition for allowance, the Examiner is invited to contact the Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,



Eric J. Robinson
Reg. No. 38,285

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PTO/SB/21 (08-00)

**TRANSMITTAL
FORM**

(to be used for all correspondence after initial filing)

TRANSMITTAL FORM (to be used for all correspondence after initial filing)	Application Number	09/550,598
	Filing Date	April 17, 2000
	First Named Inventor	Hisashi OHTANI et al.
	Group Art Unit	2814
	Examiner Name	P. Cao
Total Number of Pages in This Submission	Attorney Docket Number	0756-2119

ENCLOSURES (check all that apply)

<input checked="" type="checkbox"/> Fee Transmittal Form <input checked="" type="checkbox"/> Fee Attached <input checked="" type="checkbox"/> Amendment / Reply <input checked="" type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input checked="" type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Assignment Papers (for an Application) <input type="checkbox"/> Drawing(s) <input type="checkbox"/> Declaration and Power of Attorney <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____	<input type="checkbox"/> After Allowance Communication to Group <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input checked="" type="checkbox"/> Appeal Communication to Group (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input type="checkbox"/> Other Enclosures 1. 2. 3. 4. 5. 6.
Remarks		<input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees required or credit any overpayments to Deposit Account No. 50-2280 for the above identified docket number.

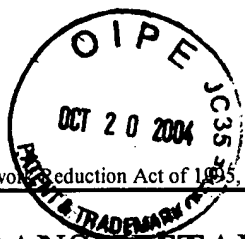
SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	Eric J. Robinson, Reg. No. 38,285 Robinson Intellectual Property Law Office, P.C. PMB 955 21010 Southbank Street Potomac Falls, VA 20165
Signature	
Date	October 18, 2004

CERTIFICATE OF MAILING

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**FEE TRANSMITTAL
FOR FY 2005**

Effective 10/01/2004. Patent fees are subject to annual revision.

☐ Applicant Claims small entity status. See 37 CFR 1.27.**TOTAL AMOUNT OF PAYMENT** (\$) 770.00**Complete if Known**

Application Number	09/550,598
Filing Date	April 17, 2000
First Named Inventor	Hisashi OHTANI et al.
Examiner Name	P. Cao
Group Art Unit	2814
Attorney Docket No.	0756-2119

METHOD OF PAYMENT

- 1.
- ☐
- The Commissioner is hereby authorized to charge indicated fees and credit any overpayments to:

Deposit
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50-2280

Deposit
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Law Office

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- Charge Any Additional Fee Required
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- Under 37 CFR 1.16 and 1.17 and
-
- credit overpayments

- ☐
- Applicant claims small entity status.
-
- See 37 CFR 1.27

- 2.
- ☒
- Payment Enclosed:**

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- Order
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- Other

FEE CALCULATION**1. BASIC FILING FEE**

Large Entity Fee Code	Large Entity Fee (\$)	Small Entity Fee Code	Small Entity Fee (\$)	Fee Description	Fee Paid
1001	790	2001	395	Utility filing fee	
1002	350	2002	175	Design filing fee	
1003	550	2003	275	Plant filing fee	
1004	790	2004	395	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	

SUBTOTAL (1) (\$)**2. EXTRA CLAIM FEES**

Total Claims	Extra Claims	Fee from below	Fee Paid
	-20** =	\$18	
Independent Claims	-3** =	\$88	
Multiple Dependent			

Large Entity Fee Code	Large Entity Fee (\$)	Small Entity Fee Code	Small Entity Fee (\$)	Fee Description
1202	18	2202	9	Claims in excess of 20
1201	88	2201	44	Independent claims in excess of 3
1203	300	2203	150	Multiple dependent claim, if not paid
1204	88	2204	44	** Reissue independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) (\$)

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)**3. ADDITIONAL FEES**

Fee Code	Large Entity Fee (\$)	Small Entity Fee Code	Small Entity Fee (\$)	Fee Description	Fee Paid
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for <i>ex parte</i> reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	430	2252	215	Extension for reply within second month	\$430
1253	980	2253	490	Extension for reply within third month	
1254	1,530	2254	765	Extension for reply within fourth month	
1255	2,080	2255	1040	Extension for reply within fifth month	
1401	340	2401	170	Notice of Appeal	\$340
1402	340	2402	170	Filing a brief in support of an appeal	
1403	300	2403	150	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,370	2453	685	Petition to revive - unintentional	
1501	1,370	2501	685	Utility issue fee (or reissue)	
1502	490	2502	245	Design issue fee	
1503	660	2503	330	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	790	2809	395	Filing a submission after final rejection (37 CFR § 1.129(a))	
1810	790	2810	395	For each additional invention to be examined (37 CFR § 1.29(b))	
1801	790	2801	395	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify) _____

* Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$) 770.00**CERTIFICATE OF MAILING**

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SUBMITTED BY

Name (Print/Type)	Eric J. Robinson	Registration No.	38,285	Telephone	(571) 434-6789
Signature		(Attorney/Agent)		Date	October 18, 2004

Complete (if applicable)